

WHAT IS CLAIMED IS:

1. A tractor assembly for moving within a borehole, comprising:
  - an elongate body;
  - a first gripper assembly slidably coupled to said body for selectively gripping an inner surface of the borehole;
  - a second gripper assembly slidably coupled to said body for selectively gripping the inner surface of the borehole;
  - a first propulsion assembly configured to propel said body through the borehole when said first gripper assembly is gripping the inner surface of the borehole;
  - a second propulsion assembly configured to propel said body through the borehole when said second gripper assembly is gripping the inner surface of the borehole; and
  - a valve system comprising:
    - a gripper control valve having a first position configured to direct pressurized fluid to said first gripper assembly along a first flow path, said gripper control valve having a second position configured to direct pressurized fluid to said second gripper assembly along a second flow path; and
    - a propulsion control valve having a first position configured to direct pressurized fluid to said first propulsion assembly, said propulsion control valve having a second position configured to direct pressurized fluid to said second propulsion assembly;

wherein said tractor assembly is configured for use with coiled tubing and wherein movement of said tractor assembly is hydraulically controlled.
2. The tractor assembly of Claim 1, wherein said valve system receives pressurized fluid from a supply source at a surface location for providing hydraulic power to said tractor assembly.
3. The tractor assembly of Claim 2, wherein the speed of said tractor assembly through the borehole is at least partially controlled by the pressure and flow rate of the pressurized fluid into said valve system.

4. The tractor assembly of Claim 1, wherein the position of said gripper control valve is controlled by fluid pressures in said first and second propulsion assemblies.

5. The tractor assembly of Claim 4, wherein the fluid pressures in said first and second propulsion assemblies effect movement of said gripper control valve following propulsion of said body through the borehole relative to said first or second gripper assembly.

6. The tractor assembly of Claim 1, wherein the position of said propulsion control valve is controlled by fluid pressures in said first and second flow paths.

7. The tractor assembly of Claim 6, wherein the fluid pressures in said first and second flow paths effect movement of said propulsion control valve following expansion of said first or second gripper assembly.

8. The tractor assembly of Claim 7, wherein said propulsion control valve comprises a spool with first and second ends, said first fluid path being in communication with said first end and said second fluid path being in communication with said second end.

9. The tractor assembly of Claim 7, wherein expansion of said first or second gripper assembly produces fluid pressure changes in said first and second flow paths and wherein said propulsion control valve changes positions after a difference in the fluid pressures exceeds a predetermined threshold.

10. The tractor assembly of Claim 9, wherein the difference in the fluid pressures exceeds the predetermined threshold only after said first or second gripper assembly has fully expanded to grip the inner surface of the borehole.

11. The tractor assembly of Claim 1, further comprising at least one pressure control valve configured for limiting the fluid pressure in said first and second gripper assemblies.

12. The tractor assembly of Claim 1, further comprising at least one inlet control valve for preventing pressurized fluid from entering said valve system from a pressurized source when the fluid at the pressurized source is outside a desired pressure range.

13. The tractor assembly of Claim 1, wherein said elongate body further comprises first and second pistons longitudinally fixed with respect to said body, wherein said first propulsion assembly comprises a first propulsion cylinder formed with a first internal propulsion chamber for slidably receiving said first piston, and wherein said second

propulsion assembly comprises a second propulsion cylinder formed with a second internal propulsion chamber for slidably receiving said second piston.

14. The tractor assembly of Claim 1, further comprising a first cycle valve having an outlet flow for piloting said gripper control valve, said first cycle valve being configured to change positions after said body has been propelled through the borehole relative to said first gripper assembly.

15. The tractor assembly of Claim 14, further comprising a second cycle valve having an outlet flow for piloting said gripper control valve, said second cycle valve being configured to change positions after said body has been propelled through the borehole relative to said second gripper assembly.

16. The tractor assembly of Claim 1, wherein said first and second gripper assemblies expand radially to grip the inner surface of the borehole.

17. The tractor assembly of Claim 1, wherein said elongate body is formed with an internal passage extending longitudinally therethrough, said internal passage being adapted for receiving pressurized fluid from a supply source.

18. The tractor assembly of Claim 17, wherein said valve system is housed within said elongate body and said valve system receives a portion of the pressurized fluid from said internal passage.

19. The tractor assembly of Claim 18, wherein a rate of advancement of said tractor assembly through the borehole is at least partially controlled by the pressure and flow rate of the pressurized fluid.

20. The tractor assembly of Claim 1, wherein said tractor assembly is connected to a drill string and the speed of movement of said tractor assembly is at least partially controlled by the tension exerted on the tractor assembly by the drill string.

21. The tractor assembly of Claim 1, wherein said elongate body is connectable to a component.

22. The tractor assembly of Claim 21, wherein the component comprises a perforation gun assembly.

23. The tractor assembly of Claim 21, wherein the component comprises an acidizing assembly.

24. The tractor assembly of Claim 21, wherein the component comprises a sandwashing assembly.

25. The tractor assembly of Claim 21, wherein the component comprises a bore plug setting assembly.

26. The tractor assembly of Claim 21, wherein the component comprises a logging assembly.

27. The tractor assembly of Claim 21, wherein the component comprises a bore casing locator.

28. The tractor assembly of Claim 21, wherein the component comprises a measurement while drilling assembly.

29. The tractor assembly of Claim 21, wherein the component comprises a fishing tool.

30. The tractor assembly of Claim 21, wherein said tractor further comprises an E-line.

31. The tractor assembly of Claim 1, wherein wherein said tractor assembly can pull at least 500 pounds but can exert no more than 100 psi on a surface surrounding said tractor assembly.

32. The tractor assembly of Claim 1, wherein said tractor assembly can pull at least 3000 pounds but can exert no more than 3000 psi on a surface surrounding said tractor assembly.

33. The tractor assembly of Claim 1, wherein a direction of travel of said tractor assembly through the borehole is hydraulically controlled.

34. A tractor assembly for moving within a borehole, comprising:  
an elongate body;

a first gripper assembly slidably coupled to said body for selectively gripping an inner surface of the borehole;

a second gripper assembly slidably coupled to said body for selectively gripping an inner surface of the borehole;

a first propulsion assembly for propelling said body through the borehole when said first gripper assembly is gripping the inner surface of the borehole;

a second propulsion assembly for propelling said body through the borehole when said second gripper assembly is gripping the inner surface of the borehole; and  
a valve system comprising:

a gripper control valve having a first position for directing pressurized fluid to said first gripper assembly, said gripper control valve having a second position for directing pressurized fluid to said second gripper assembly; and

a propulsion control valve having a first position for directing pressurized fluid to said first propulsion assembly, said propulsion control valve having a second position for directing pressurized fluid to said second propulsion assembly;

wherein said propulsion control valve is piloted by fluid pressures in said first and second gripper assemblies, such that said gripper control valve must move from said first position to said second position before said propulsion control valve moves from said first position to said second position.

35. A tractor assembly for moving within a borehole, comprising:

an elongate body;

first and second gripper assemblies slidably coupled to said body for selectively gripping an inner surface of the borehole;

first and second propulsion assemblies for propelling said body through the borehole while said first or second gripper assembly is gripping the inner surface of the borehole; and

a valve system comprising:

a gripper control valve for directing pressurized fluid to said first and second gripper assemblies; and

a propulsion control valve for directing pressurized fluid to said first and second propulsion assemblies;

wherein movement of said tractor assembly through the borehole is entirely hydraulically controlled.